

PATTERN DISPLAY DEVICE AND GAME MACHINE INCLUDING THE SAME

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is based upon and claims the benefit of Japanese Patent Applications No. 2000-51314 filed on Feb. 28, 2000, No. 2000-65097 filed on Mar. 9, 2000, and No. 2000-68925 filed on Mar. 13, 2000, the contents of which are incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] This invention relates to pattern display devices, and game machines including display devices.

[0004] 2. Description of the Related Art

[0005] On one type of game machines, a set of moving patterns is displayed, then the motion of the patterns is stopped, and awarded items (coins and game balls) are dispensed if the resulting (stopped) set of patterns coincides with one of winning sets of patterns. On the other hand, on another type of game machines, a machine is suddenly switched to a different game condition that allows a player to earn many awarded items more easily (a condition called special play or special award). The former case (format where awarded items are dispensed according to the pattern) is represented by slot machines and the latter case is represented by ball playing machines such as pachinko machines. There is also a kind of slot machines called Pachisuro machines (a kind of slot machines), where the game is switched to a special playing condition in addition to dispensing awarded items when a special set of pattern (e.g., 777) appears.

[0006] In many of these pattern display devices, patterns are displayed in a matrix composed of several rows and columns (e.g., three rows and three columns), and awarded items and special playing conditions are provided when the combination of patterns along a row of the matrix or a diagonal line (normally called "winning line") coincides with one of the winning sets of patterns. On a slot machine, it is common to change the number of winning lines based on an amount of bets.

[0007] Conventional pattern display devices can have either a mechanical display means where patterns are displayed by the rotation (scrolling display) and stopping (stationary display) of pattern-painted reels (drums) or belts, or an electrical display means where patterns are displayed as varying and stationary displays by means of a liquid crystal display (LCD) device, CRT, etc. Furthermore, some of them have a transparent LCD device in front of the aforementioned display means, to display the above-described winning line, or to show an advertising content or simulations when the game is not executed (Japanese Unexamined Patent Publication No. 2-19182).

[0008] The technique disclosed by Japanese Unexamined Patent Publication No. 2-19182 overlays the LCD screen display on top of the regular patterns, however, the overlaid display is composed of only winning lines and is monotonous and luck excitement for a player. The overlaid display has no bearing on the fun of a game.

SUMMARY OF THE INVENTION

[0009] The present invention has been made in view of the above problems. An object of the present invention is to make it possible to perform several kinds of overlaid displays (overlapping displays). Another object of the present invention is to provide a display device and a game machine adopting the same capable of performing several kinds of overlapping displays.

[0010] According to one aspect of the present invention, a pattern display device has a front side display unit that is disposed in front of a pattern display unit (back side display unit) capable of displaying a plurality of first display patterns. The front side display unit can display a plurality of second patterns overlapping with the first patterns, and is transparent except for the second patterns. Accordingly, the overlapping display becomes variable and flexible. If this pattern display device is applied to a game machine, the overlapping display can attract player's attention, and a high game selection capability can be provided to the player.

[0011] According to another aspect of the invention, a game machine has a back side display unit for displaying a back pattern, a transparent front side display unit disposed in front of the back side display unit, for displaying a front pattern. In the game machine, the front pattern is displayed alone or together with the back pattern to be recognized as a game target display by a player, and a game condition is determined by the game target display. The game machine can have high display variation, and the player can recognize by the game target display whether the game condition is a winning condition or not.

[0012] Preferably, the game machine has a means that notices the player that the winning condition is established. The means is, for example, a mark for indicating a winning line, the line itself, or the like. The game machine can have a means for giving a game value or an awarded item to the player when the winning condition is established. When a game value (for example, a right for executing a special game) is given to the player, the means can be composed of, for example, a control unit for setting the game machine at a special play (Bonus, Big Bonus) mode. When an awarded item is given to the player, the means can be composed of, for example, a dispenser for dispensing coins, game balls, and the like.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] Other objects and features of the present invention will become more readily apparent from a better understanding of the preferred embodiments described below with reference to the following drawings, in which:

[0014] **FIG. 1** is a front view showing a slot machine in a first embodiment of the invention;

[0015] **FIG. 2** is a cross-sectional view partially showing a middle part of the slot machine shown in **FIG. 1**;

[0016] **FIG. 3** is an explanatory view showing overlapping display of reels and transparent EL panels in the slot machine shown in **FIG. 1**;

[0017] **FIG. 4** is a block diagram showing a control system of the slot machine shown in **FIG. 1**;

[0018] **FIG. 5** is a functional block diagram showing the control system of the slot machine shown in **FIG. 1**;